

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

DAM, FLOODWATER RETARDING

(number and acre-feet)
CODE 402

DEFINITION

A single-purpose dam designed for temporary storage of floodwater and for its controlled release.

PURPOSE

- Reduce flood damages downstream by controlling the release rate from flood flows of predetermined frequencies
- Permit the use of more economical channel modification or stabilizing structures in the channel downstream and reduce environmental hazards and pollution.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites meeting all the following conditions:

1. Topographic, geologic, and soils conditions at the proposed site are satisfactory for the development of a feasible dam and reservoir.
2. The sediment yield at the site is not excessive.

Special attention shall be given to maintaining habitat for fish and wildlife if applicable.

CRITERIA

All dams designed under this standard shall meet or exceed the criteria stated in the Pond (378) standard and specification or in TR-60, Earth Dams and Reservoirs, as appropriate, except as specifically changed by this standard.

The capacity of the principal spillway shall be adequate to discharge, in 10 days or less, the floodwater storage needed to provide the desired level of protection to the downstream benefited area. Storage provided primarily for the purpose of reducing the frequency of use of the auxiliary spillway need not be included in this 10-day draw-down limitation. The discharge through gated outlets shall not be considered in determining the emptying time of the retarding pool.

The elevation of the crest of the lowest stage of the principal spillway shall be set at the elevation of the sediment pool. For dry dams, the riser shall be designed to permit design discharge at the sediment pool elevation with provisions for discharging water at lower elevations to satisfy the functional requirements of the structure.

All parts of the principal spillway, except attached gates and trash racks, shall have an expected service life equal to or greater than the design life of the structure or provisions made for replacement. Principal spillways shall meet the requirements with respect to materials established in the Pond (378) standard and specification or in TR-60, as appropriate.

The minimum diameter of the conduit used as a principal spillway shall be 10 inches.

The storage volume shall not be less than the expected sediment accumulation during a period equal to the design life.

The retarding storage requirements shall be of such as to contain the runoff expected to

occur at a frequency consistent with the level of protection to be provided to the downstream benefited area, with proper allowance for discharge through the principal

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402-2

pal spillway. The retarding storage capacity shall be sufficient to limit the use of the auxiliary spillway to a permissible frequency and duration based upon consideration of the erosion resistance of the spillway material and vegetative protection to be provided.

CONSIDERATIONS

The determination of capacity must be based on consideration of the benefits:

- that accrue to the reduction in the discharge rate
- from damages that may result from prolonged storage in the retarding pool
- from damages that may result from prolonged outflow, and limitations in water rights or other legal requirements

Longer release times may be used if warranted by downstream conditions.

PLANS AND SPECIFICATIONS

Plans and specifications for installing floodwater retarding dams shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

Provisions shall be made as necessary for operation and maintenance requirements and may include a formal plan for larger more complex dams.

The following University of Missouri Agricultural Guide provides information on operating and maintaining structures with embankment dams:

1548 "Maintaining Small Dams"

**NATURAL RESOURCES CONSERVATION SERVICE
MISSOURI CONSTRUCTION SPECIFICATION**

**FOR
DAM, FLOODWATER RETARDING
(402)**

Specifications for construction of floodwater retarding dams within the scope of the standard for ponds (378) shall, as a minimum, be commensurate with those for ponds (378). Those within the scope of the criteria in TR-60 shall be in accord with the guide specifications contained in the National Engineering Handbook, Section 20.

Construction operations shall be carried out in such a manner and sequence such that erosion and air and water pollution will be minimized and held within legal limits. A land disturbance permit from the Missouri

Department of Natural Resources may be needed if the disturbed area is greater than five acres in size.

The completed job shall present a workmanlike appearance and shall conform to the line, grades, and elevations shown on the drawings or as staked in the field.

All operations shall be carried out in a safe and skillful manner. Safety and health regulations shall be observed and appropriate safety measures used.

Additional details: _____
